Claims

1. A stable liquid medical formulation, which contains a therapeutically effective amount of an antibody in a glutamate buffer and/or a citrate buffer and has a pH between 4.0 and 6.0.

2. The liquid medical formulation according to claim 1, wherein the concentration of the buffer is between 1 mM and 50 mM.

3. The liquid medical formulation according to claim 1 or 2, which contains an isotonizing agent.

4. The liquid medical formulation according to any one of claims 1 to 3, which contains no salt as an isotonizing agent.

5. The liquid medical formulation according to claim 3 or 4, wherein the isotonizing agent is a polyol.

6. The liquid medical formulation according to claim 5, wherein the polyol is a sorbitol.

7. The liquid medical formulation according to any one of claims 3 to 6, wherein the osmotic pressure is between 250 mOsm and 350 mOsm.

8. The liquid medical formulation according to any one of claims 1 to 7, which contains a surfactant.

9. The liquid medical formulation according to claim 8, wherein the surfactant is polysorbate 80.

10. The liquid medical formulation according to claim 8 or 9, wherein the concentration of the surfactant is between 0.02 mg/mL and 0.10 mg/mL.

11. The liquid medical formulation according to any one of claims 1 to 10, wherein the antibody is a human antibody, a humanized antibody, or a chimeric antibody.

12. The liquid medical formulation according to any one of claims 1 to 11, wherein the antibody is a monoclonal antibody.

13. The liquid medical formulation according to any one of claims 1 to 12, wherein the antibody is IgG.

14. The liquid medical formulation according to claim 13, wherein the IgG subclass is any one of IgG1, IgG2, or IgG4.

15. The liquid medical formulation according to claim 13 or 14, wherein the IgG comprises the amino acid sequence of a constant region, a part of which sequence has been subjected to amino acid deletion, substitution, and/or insertion by partial gene alteration.

16. The liquid medical formulation according to any one of claims 1 to 15, wherein the antibody is an antibody against HLA-DR.

17. The liquid medical formulation according to any one of claims 1 to 15, wherein the antibody is an antibody against CD40.

18. The liquid medical formulation according to any one of claims 1 to 17, wherein the concentration of the antibody is between approximately 1 and 200 mg/mL.

19. A stable liquid medical formulation, which contains in a glutamate buffer a therapeutically effective amount of an antibody, a sorbitol as an isotonizing agent, and polysorbate 80 as a surfactant and has a pH between 4.0 and 6.0.

20. A stable liquid medical formulation, which contains in a glutamate buffer, a therapeutically effective amount of an antibody, a sorbitol as an isotonizing agent, and polysorbate 80 as a surfactant and has a pH between 4.5 and 6.0.

21. The liquid medical formulation according to any one of claims 1 to 20, which contains at least 1 type of stabilizing agent selected from the group consisting of glycine, methionine, cysteine hydrochloride, leucine, lysine hydrochloride, arginine hydrochloride, aspartic acid, ascorbic acid, EDTA, and salts thereof.

22. A method for producing the liquid medical formulation according to any one of claims 1 to 21.

23. A method for stabilizing an antibody, which comprises combining, according to the composition according to any one of claims 1 to 22, a therapeutically effective amount of an antibody, a glutamate buffer and/or a citrate buffer, an isotonizing agent, and a

surfactant.